

CLAIMS

What is claimed is:

1. An apparatus for reproducing audio and/or video (AV) data in an interactive mode using a markup document, comprising:
 - a reader to read the AV data;
 - a memory to temporarily store the markup document corresponding to the AV data;
 - and
 - a presentation engine to present the markup document according to a document life cycle, wherein the document life cycle comprises:
 - a preloading process reading the markup document into the memory,
 - a loading process interpreting the markup document and loading the markup document on a screen, and
 - an interacting process facilitating an interaction between the markup document and a user.
2. The apparatus according to claim 1, further comprising:
 - a buffer memory to buffer the AV data;
 - a decoder to decode the buffered AV data; and
 - a blender to blend the decoded AV data and the interpreted markup document, and to output the blended result.
3. The apparatus according to claim 1, wherein the document life cycle further comprises a terminating process terminating the presentation of the markup document.
4. The apparatus according to claim 1, wherein the document life cycle further comprises a discarding process discarding the markup document in the memory.
5. The apparatus according to claim 1, wherein in the loading, the presentation engine generates a document object tree where the markup document is valid.

6. The apparatus according to claim 5, wherein the presentation engine determines whether the markup document is valid by performing a document type definition (DTD) check.

7. The apparatus according to claim 5, wherein the presentation engine generates the document object tree according to a rule that a root node of all nodes is set to a document node, a rule that all texts and elements generate nodes, and a rule that a processing instruction, a comment, and a document type generate a node.

8. The apparatus according to claim 5, wherein in the loading, the presentation engine renders a node of the document object tree.

9. The apparatus according to claims 1, wherein in the loading, the presentation engine generates a document object tree by interpreting the markup document and renders the markup document based on the generated document object tree.

10. The apparatus according to claim 9, wherein in the loading, the presentation engine registers an event handler in the rendering of the markup document.

11. The apparatus according to claim 10, wherein after the rendering, the presentation engine monitors whether an event takes place through the event handler.

12. The apparatus according to claim 1, wherein in the loading, the presentation engine generates a document object tree by interpreting the markup document, interprets and applies the interpreted stylesheet to the generated document object tree, generates a formatting structure based on the stylesheet-applied document object tree, and renders the markup document based on the generated formatting structure.

13. The apparatus according to claim 1, wherein in the preloading, the presentation engine reads a stylesheet corresponding to the markup document into the memory.

14. The apparatus according to claim 1, wherein in the interacting, the presentation engine generates a 'load' event.
15. The apparatus according to claim 1, wherein in the interacting, the presentation engine generates an 'unload' event in response to a request to terminate the markup document loaded on the screen.
16. The apparatus according to claim 1, wherein the presentation engine performs a terminating process terminating the presentation of the markup document in response to an 'unload' event taking place during the interacting.
17. The apparatus according to claim 1, wherein the markup document is data read by the reader from an information storage medium comprising the AV data.
18. The apparatus according to claim 1, wherein the markup document is data fetched from a network.